

ABSTRACT

A method of automatically correcting dust artifact regions within images acquired by a digital image acquisition system including a digital camera with a lens assembly includes determining probabilities that certain pixels within multiple digitally-acquired images correspond to one or more dust artifact regions. A statistical dust map is formed including mapped dust artifact regions based on the dust artifact determining. The mapped dust artifact regions are separated into aura regions partially obscured by dust and shadow regions substantially obscured by dust inside the aura regions. Digital data are corrected corresponding to pixels within one or more digitally-acquired images including dust artifact regions separated into aura regions and shadow regions correlated with mapped aura and shadow regions of the statistical dust map.